

DOLGOPOLOVA, A.V., doktor med.nauk; MAKSAKOVA, Ye.N., kand.med.nauk

"Rheumatic fever in children". Reviewed by A.V.Dolgopolova,  
E.N.Maksakova. Vop.revm. 3 no.1:89-92 Ja-Mr '63.

(MIRA 16:4)

(RHEUMATIC FEVER)

DOLGOPOLOVA, A.V., prof.

State and development of research on the problem of rheumatic fever and diseases of the joints in childhood throughout the Russian Federation. Vop. revm. 3 no.4:67-71 O-D '63.

(MIRA 17:2)

1. Predsedatel' Problemnoy komissii po revmatizmu i boleznyam sustavov pri Uchenom meditsinskom Sovete Ministerstva zdoravookhraneniya RSFSR.

Pu-4 IJ(c) JP/JG

ACCESSION NR: AP5009113

S/0043/25/029/003/0406/0408

AUTHOR: Shorobogatov, B.B.; Samokova, N.A.; Dolgoplova, A.V.; Kovaleva, L.V. 52

TITLE: luminescence of trivalent rare earth ions in NaCl crystals [Report, 12th Conference on luminescence held in L'viv, 30 Jan-3 Feb 1964] 15

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 3, 1965, 406-409

TOPIC TAGS: luminescence, luminescence spectrum, luminescent crystal, sodium chloride, rare earth element 27

ABSTRACT: The authors have investigated the luminescence of trivalent Nd, Pr, Sm, Gd, Tb, Dy, and Er ions in NaCl crystals. Two types of luminescence center were found; which type was realized in a given crystal depended on undisclosed conditions under which the crystal was grown. The luminescence spectrum of one type consists essentially of a line spectrum of the rare earth; the luminescence spectrum of the other type contains, in addition to the line spectrum, a broad band in the blue, the origin of which is not understood. Photographs are presented of the luminescence spectra at several temperatures of NaCl:Pr<sup>3+</sup>, NaCl:Sm<sup>3+</sup>, NaCl:Tb<sup>3+</sup>, NaCl:Dy<sup>3+</sup>, and NaCl:Er<sup>3+</sup>; the luminescence spectrum of NaCl:Mn<sup>3+</sup> and the excitation

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L 43910-65

ACCESSION NR: AP0009013

spectrum of  $\text{NaCl:Tb}^{3+}$  are presented graphically. These spectra are discussed and the transitions responsible for many of the lines are identified. In  $\text{NaCl:Sm}^{3+}$  the positions of the lowest radiation levels (a mixture of  $^6\text{H}_{7/2}$  and  $^6\text{F}_{7/2}$  states) and the  $^6\text{H}_{7/2}$  and  $^6\text{F}_{7/2}$  levels are in good agreement with the calculations of S.O. Wybourne (J.Chem. Phys., 36 2301 (1962)). It is concluded that the rare earth ions enter randomly into the lattice interstices, probably by replacing Na ions. The location of the rare earth ion has been determined and that the rare earth ion interacts strongly with its surroundings. Thank you to Dr. J. B. O'Brien and Dr. J. B. O'Brien for assistance with this work.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: 02, 83

NR REF SCV: 000

OTHER: 003

Card 2/2 MB

UGRYUNOV, V.M., prof., otv. red.; BEKHTEREVA, N.F., doktor med. nauk, red.; VOLKOV, A.A., red.; ~~DOLGOPOLOVA, G.A., red.~~; NIKIFOROV, B.M., red.; RACHKOV, B.M., red.; RASTORGUYEV, A.V., red.; TELEGINA, A.A., red.; YATSUK, S.L., red.; LEVIN, M.V., tekhn. red.

[Proceedings of the Fourth Joint Scientific Conference of Young Neurosurgeons] Chetvertaya ob"edinennaya nauchnaya konferentsiya molodykh neirokhirurgov, trudy. Leningrad. Medgiz. 1961. 414 p. (MIRA 15:6)

1. Ob"yedinennaya nauchnaya konferentsiya molodykh neyrokhirurgov, 4th. 2. Leningradskiy neyrokhirurgicheskiy institut im. prof. A.L. Polenova (for Volkov, Dolgopolova, Yatsuk, ~~Rachkov~~). 3. Laboratoriya operativnoy neyrokhirurgii Leningradskogo neyrokhirurgicheskogo instituta imeni prof. A.L. Polenova (for Nikiforov, Telegina). 4. Kafedra operativnoy khirurgii pediatricheskogo meditsinskogo instituta, Leningrad (for Nikiforov, Telegina, Yatsuk). 5. Direktor Leningradskogo nauchno-issledovatel'skogo neyrokhirurgicheskogo instituta im. prof. A.L. Polenova (for Ugryumov).

(NERVOUS SYSTEM---SURGERY)

S/196/61/000/009/013/052  
E194/E155

AUTHORS: Dolgoplov, V.I., Dolgoplova, L.N., and  
Kamayeva, G.F.

TITLE: Fluorescent silicate enamel

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika,  
no.9, 1961, 12, abstract 9V 94. (Svetotekhnika, no.3,  
1961, 18-21)

TEXT: A fluorescent silicate enamel has been developed which  
has a brightness and duration of after-glow similar to those of  
the fluorescent plastics now used but which is superior in respect  
of stability of physical and chemical properties and resistance to  
moisture and atmosphere. The consumption of fluorescent materials  
in the silicate fluorescent enamel is half that in plastics.  
According to preliminary calculations the cost of one m<sup>2</sup> of  
silicate fluorescent enamel is a fifth of that of fluorescent  
plastic. The silicate fluorescent enamel can be used for making  
fluorescent signs.

4 figures, 2 literature references.

[Abstractor's note: Complete translation.]

Card 1/1

DOLGOPOLOV, V.I., inzh.; DOLGOPOLOVA, L.N., inzh.; PETROVA, N.G., inzh.

Principal characteristics of materials used in manufacturing  
light fixtures. Svetotekhnika 9 no.11:18-22 N '63.  
(MIRA 16:12)

1. Vsesoyuznyy svetotekhnicheskiy institut.

DOLGOPOLOV, V.I., inzh.; DOLGOPOLOVA, L.N., inzh.; PETROVA, N.G., inzh.;  
BELOGLOVSKAYA, T.I., inzh.

Electroluminescent mimic flowsheets and signal registers for  
control boards. Elek. sta. 34 no.7:72-73 J1 '63.  
(MIRA 16:8)



DOLGOPOLOVA, N. N.

Dolgopolova, N. N. - "Physical and agrochemical characteristics of the soil of a wooded steppe contour under conditions of the Central-chnozem forest preserve," Trudy Tsentr.-Chernozem. gos. zapovednika, Issue 2, 1948 p. 5-77. - Bibliog: 145 items

SO: U-4355, 1/ August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

S/139/60/000/03/028/045

E032/E314

N.R.

AUTHORS: Stolov, A.L. and Dolgoplova, N.R.

TITLE: The Infra-red Spectrum of a Glow Discharge

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,  
1960, No 3, pp 154 - 157 (USSR)

ABSTRACT: The infra-red spectrum in the region  $650 - 6500 \text{ cm}^{-1}$  was obtained with the aid of the IKS-11 spectrometer incorporating NaCl and LiF crystals. The detector was a vacuum thermocouple, having a sensitivity of 1 V/W. The source of radiation was the positive column of a DC glow discharge. The use of DC discharges led to a considerable reduction in the noise level and the pressure in the discharge vessel could be increased right up to the atmospheric pressure, thus increasing the intensity of the source. The discharge was excited in a metal tube with a NaCl window and water-cooled copper electrodes. The discharge was operated at 1 000 V, 150 mA. The spectrum of a glow discharge in carbon dioxide is shown in Figure 1 and is identical with the flame spectrum of  $\text{CO} + \text{O}_2$ .

Card1/3 (Refs 6,7). The upper trace was obtained with LiF and

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The Infra-red Spectrum of a Glow Discharge

the lower with NaCl. The slit widths were: 1 - 0.4; 2 - 0.3; 3 - 0.29 and 4 - 1.0 mm, respectively. Figure 2 shows the spectrum of the glow discharge in air. The arrows show NO, NO<sub>2</sub> and N<sub>2</sub>O<sub>4</sub> bands. These occur at 1945, 1585 and 1815 cm<sup>-1</sup>, respectively. In absorption, the corresponding wave numbers are 1878, 1621, 1749 cm<sup>-1</sup>, respectively. A study was also made of the intensity of the CO<sub>2</sub> band at 2349 cm<sup>-1</sup> as a function of pressure. It was found that the behaviour of the curve depends both on the re-absorption of the radiation and on the distance of the particular section of the discharge from the axis. At greater distances from the axis saturation of the curve occurs at lower pressures. Re-absorption has a similar effect and tends to accelerate the saturation of the curve as the pressure is increased. A calculation was made of the probability of transfer of a vibrational quantum on collision between CO<sub>2</sub> molecules. The result is  $0.2 \times 10^{-6}$ , which

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The Infra-red Spectrum of a Glow Discharge

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is smaller by an order of magnitude than that obtained by Terenin and Neuymin (Ref 2). The discrepancy may be ascribed to the fact that reabsorption and peripheral regions of the discharge were not taken into account in Ref 2. The above results for the probability, on the other hand, were obtained by investigating the CO<sub>2</sub> band at 4.6  $\mu$ , where reabsorption is practically absent. There are 4 figures, 1 table and 14 references, 12 of which are Soviet and 2 English.

ASSOCIATION: Kazanskiy gosuniversitet (Kazan State University)

SUBMITTED: Muly 17, 1959



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DOLGOPOLOVA, N.R.; MEYKLYAR, P.V.; SHVARTS, V.M.

Effect of development conditions on the shape of the spectral sensitivity curve of unsensitized photographic layers. Zhur. nauch. i prikl. fot. i kin. 8 no.3:185-189 My-Je '63.  
(MIRA 16:6)

1. Filial Vsesoyuznogo nauchno-issledovatel'skogo kinofoto-instituta, Kazan'  
(Photographic sensitometry)

NIKISHKINA, P.I.; DOLGOPOLOVA, R.V.

Soil conditions for the effectiveness of boron fertilizers.  
Pochvo-edenie no.11:70-78 N '64 (MIRA 18:1)

1. Pochvennyy institut imeni V.V. Dokuchayeva AN SSSR,  
Moskva.

L 07257-67 EWT(d) IJP(c)  
ACC NR: AP6018636

SOURCE CODE: UR/0208/66/006/003/0570/0576

AUTHOR: Dolgoplova, T. F. (Sverdlovsk); Ivanov, V. K. (Sverdlovsk)

ORG: none

TITLE: Numerical differentiation

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 6, no. 3, 1966, 570-576

TOPIC TAGS: numeric solution, differentiation error, approximation calculation, approximation error

ABSTRACT: Various articles dealing with numerical differentiation substitute the function  $f(x)$ , which is to be differentiated, by an approximation polynomial  $p(x)$ , and this is followed by an estimate of the  $|f'(x) - p'(x)|$  error. However, unlike integration, numerical differentiation belongs to inaccurate problems: one can always find cases where for an arbitrarily small deviation of the known approximate function  $f_\delta(x)$  from the exact one  $f(x)$  their derivatives may differ by an arbitrarily large amount. Consequently, there is a need for a theory of inaccurate problems. The present authors use a modification of the regularizing method due to A. N. Tikhonov (Dokl. AN SSSR, 1963, 151, no. 3, 501-504) which permits the establishment of a polynomial  $p_\delta(x)$ , uniformly approaching  $f'(x)$ , from the function  $f_\delta(x)$ . In this modification, an operator equation of the first kind is solved in which instead of requiring

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UDC: 518.517.949.12

L 07257-67

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that the operator be continuous, one demands only that it be closed. The basic results are presented in the form of five theorems. Orig. art. has: 43 formulas.

SUB CODE: 12/ SUBM DATE: 03Jul65/ ORIG REF: 006/ OTH REF: 005

Card

2/2



TKACHEV, I.G.; DOLGOPOLOVA, T.I.

Influence of the consistency of the overburden soils on the occurrence of clay inrush in the mines of Kuznetsk Basin.  
Fiz.-tekhn. probl. razrab. pol. iskop. no.1:75-89 '65.

(MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gornoy geomekhaniki i marksheyderskogo dela, Leningrad.

*DOLGOPOLOVA, V.I.*

BEREGOVSKIY, V.Ye.; VASILENKO, M.I.; VELIER, R.L.; VERBLOVSKIY, A.M.;  
VERNER, B.F.; VOYDALOVSKAYA, Ye.N.; VOL'SKIY, A.N.; GLAZKOVSKIY, A.A.;  
GRANOVSKIY, B.L.; GREYVER, N.S.; GUDIMA, N.V.; *DOLGOPOLOVA, V.I.*;  
KARCHEVSKIY, V.A.; KOVACHIVA, Ye.B.; KUDRYAVTSEV, P.S.; LEBEDEV, A.K.;  
LISOVSKIY, D.I.; LIKHNITSKAYA, Z.P.; MATVEYEV, N.I.; MEL'NITSKIY, A.N.;  
MIRONOV, A.A.; MIKHAYEVA, A.A.; MURACH, N.N.; OKUN', A.B.; OL'KHOV, N.P.;  
OSIPOVA, T.B.; PAVLOV, V.P.; ROTINYAN, A.L.; SAZHIN, N.P.; SEVRUKOV, N.N.;  
SIDOROV, P.M.; SOBOLOV, S.I.; KHEYFETS, V.L.; TSEYNER, V.M.;  
SHAKHNAZAROV, A.K.; SHEYN, Ya.P.; SHEREMET'YEV, S.D.; SHERMAN, B.P.;  
SHISHKIN, N.N.; SHLOPOV, A.P.

Georgii Ivanovich Blinov. TSvet.net. 28 no.6:62 N-D '55.

(MIRA 10:11)

(Blinov, Georgii Ivanovich, 1911-1955)

*Dolgopolova, Ye.*

AUTHOR: Yefimov, A., and Dolgopolova, Ye. 27-11-19/31

TITLE: The FZU Schools to the Foodstuffs Industry (Shkoly FZU promyshlennosti prodovol'stvennykh tovarov)

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, 1957,<sup>14</sup> # 11, p 27 (USSR)

ABSTRACT: The basic source for training qualified workmen are the educational institutions of the Labor Reserves, except for some branches of industry where the training is supplied by the FZU schools (Fabrichno-zavodskoye uchenichestvo- Industrial Training) where every year about 10,000 young workmen of various food specialities are trained. Thus, 25 to 50 % of the laborers in the bread and confectionery factories are former pupils of FZU schools. Many FZU school graduates of the Uzbekkonservtrest occupy positions of acting technologists, acting chemists and instructors of practical training. The article mentions two men who have distinguished themselves, one working in the Pervukhin Sugar Plant (Pervukhinskiy sakharney zavod) and the other in the Kupyansk Sugar Plant (Kupyanskiy sakharney zavod). At a conference of the FZU school directors attached to the food industry, it was proved that during the last few years the instructional-pedagogical work at these schools has con-

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DOIGOPOL'SKAYA, A. M.

PA 22/49T46

USSR/Medicine -- Streptococci Nov/Dec 48  
Medicine -- Puerperal Infection

"Biological Properties and Factors Controlling  
the Propagation of Pyogenic Microbes in Puerperal  
Diseases," A. M. Dolgopol'skaya, A. A. Sintskiy,  
Bacteriol Lab, and Clinic for Puerperal Diseases,  
Gen Inst of Obstet and Gynecol, 24 pp

"Akusher i Ginekol" No 6

Reviews existing data on subject. Presents results  
of bacteriological investigation of 48 cases.  
Concludes that existing laboratory tests for deter-  
mining biological properties of pathogenic microbes  
do not permit detailed evaluation of their

22/49T46

USSR/Medicine -- Streptococci(Contd) Nov/Dec 48

Virulence and pathogenicity. Virulence of  
hemolytic streptococci of puerperal origin is  
manifested most clearly by determination of  
activity of the propagation factor. Test on  
coagulase in conjunction with determination of  
activity of propagation factor is most complete  
in the determination of pathogenic and virulent  
properties of streptococci of puerperal origin.

22/49T46

DOLZOPOL'SKAYA, A.M.

Bacteriological features of postpartal and postabortion diseases  
due to the use of antibiotics [with summary in English]. Akush. i  
gin. 34 no.1:46-49 Ja-F '58.  
(MIRA 11:4)

1. Iz Instituta slusherstva i ginekologii (dir. -- prof. P.A.  
Beloshapko) AMN SSSR.

(PUERPERAL INFECTION, ther.

antibiotics, eff. on microbiol. features of blood &  
vaginal secretions (Rus))

(ABORTION, compl.

infect., microbiol. features of blood & vaginal  
secretions after antibiotic ther. (Rus))

(ANTIBIOTICS, ther. use

puerperal & postabortion infect., eff. on microbiol.  
features of blood & vaginal secretions (Rus))

DOLGOPOL'SKAYA, A. M.

Some epidemiological characteristics of puerperal mastitis  
under current conditions. Akush. i gin. no. 2:26-29 '62.  
(MIRA 15:6)

1. Iz bakteriologicheskoy laboratorii (sav. - kandidat meditsinskikh nauk A. P. Yegoreva) i otdeleniya poslerodovykh zabolevaniy (sav. - prof. S. G. Khaskin) Instituta akusherstva i ginekologii (dir. - chlen-korrespondent AMN SSSR prof. P. A. Beloshapko[deceased]) AMN SSSR.

(BREAST—DISEASES) (PUERPERIUM)

DOLGOPOL'SKAYA, A.M., kand. med. nauk

Antitoxic antistaphylococcal immunity in puerperants and newborn infants in connection with their immunization with staphylococcal anatoxin. Akush. i gin. 40 no.1:27-31 Ja-F '64.

(MIRA 17:8)

1. Bakteriologicheskaya laboratoriya (zav. - kand. med. nauk  
A.P. Yegorova) i 2-ye akusherskoye otdeleniye (zav. - prof.  
S.G. Khaskin) Instituta akusherstva i ginekologii (dir. - prof.  
M.A. Petrov-Maslakov) AMN SSSR, Leningrad.

DOLGOPOL'SKAYA, L.V.

Some special problems in the work of cutting shops abroad.  
Shvein.prom. no. 3:26-29 My-Je '59. (MIRA 12:9)  
(Garment cutting)



ДОЛГОПОЛ'СКАЯ, М.А.  
DOIGOPOL'SKAYA, M.A.

~~Experimental study of the formation of overgrowths in the sea;~~  
preliminary communication on the first year of research. Trudy  
SBS 8:157-173 '54. (MIRA 11:1)  
(Marine biology)

ДОЛГОПОЛ'СКАЯ, М.А.  
DOLGOPOL'SKAYA, M.A.

One more case of uncompleted immigration from the Mediterranean  
Sea into Black Sea. Trudy SBS 8:174-177 '54. (MIRA 11:1)  
(Sevastopol, Bay of--Girripedia)

ДОЛГОПОЛ'СКАЯ, М.А.

ДОЛГОПОЛ'СКАЯ, М.А.

Metamorphosis of decapods of the Black Sea. Trudy SBS 8:178-213  
'54. (MIRA 11:1)

(Black Sea--Decapoda. (Crustacea)

*Dolgopolskaya, M.A.*  
DOLGOPOL'SKAYA, M.A.

~~Significance of the decapods of the Black Sea for the nutrition~~  
of fishes and dolphins. Trudy SBS 8:214-219 '54. (MIRA 11:1)  
(Black Sea--Decapoda)  
(Fishes--Food)  
(Dolphins)

DOLGOPOL'SKAYA, J. A.

Cladocera of the Black Sea. Trudy SBS 10:27-75 '58.

(MIRA 12:9)

(Black Sea---Water fleas)

21(8)

SOV/89-6-6-16/27

AUTHORS: Dolgopol'skaya, M. A., Il'in, L. A., Puzanov, I. A., Tsenev, V. A.

TITLE: The Application of Radioactive Isotopes in Fighting  
Fouling at Sea (Primeneniye radioaktivnykh izotopov v bor'be s  
obrastaniyami v more)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 6, pp 674-676 (USSR)

ABSTRACT: The present "Letter to the Editor" deals with the experimental verification of the possibility of protecting ships and other objects exposed to sea water by a coating which contains radioactive ingredients against being overgrown by marine micro-organisms and plants. Already in 1955 V. A. Tsenev suggested the use of  $\beta$ -active isotopes for this purpose. For their experiments the authors used the  $\beta$ -active isotope  $Y^{91}$  (dissolved in 3N HCl) the  $\beta$ -particles of which have a range of  $\sim 8$  mm in water. A 120.40 mm large and 2.5 mm thick glass plate was coated with a film of the radioactive solution ( $Y^{91}$  with water of diluted polyvinyl acetate emulsion). After heating to  $60^{\circ}$  with subsequent cooling to  $20^{\circ}$  the surface of the plate was covered by three layers of ethinol varnish and

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The Application of Radioactive Isotopes in  
Fighting Fouling at Sea

SOV/89-6-6-16/27

PKh7-70 varnish (Fig 1). The entire thickness of the coatings was  $35 \pm 3$  mg/cm<sup>2</sup>. The results of the surface activity measurements of 4 test plates are listed in a table. The plates as well as the control plates were lowered into the sea to a depth of 1 m 40 m off shore (at that place the sea was 3 m deep). Figure 1 shows such a plate before the lowering into the sea water and figure 2 shows a plate with neutral surface (a) and another one with activated surface (b) which were subjected to the action of the sea water for 10 days. Barnacles were observed on both plates. A further experiment was carried out for 61 days. The control plate and the neutral parts of the test plates were covered with a layer of a thickness of 25 mm, the active surface remained uncovered. A third experiment which (November 16, 1957) lasted for 102 days, and in the course of which the surface activity decreased to less than one third, showed that the activated surface was still free from

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The Application of Radioactive Isotopes in  
Fighting ... Fouling at Sea

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overgrowths. Figure 3 shows the photographs of three plates (see Table) after 102 days in sea water. For the application of such protective coatings above all long lived  $\beta$ -emitters are suggested; besides  $Y^{91}$  mainly  $Tl^{204}$  ( $T = 2.7$  a),  $Ru^{106}$ ,  $Rh^{106}$  (360 d),  $Ce^{144}$  -  $Pr^{144}$  (288 d). There are 3 figures and 1 table.

SUBMITTED: August 19, 1958

Card 3/3



DOLGOPOL'SKAYA, M.A.; GUREVICH, Ye.S.; SETKINA, O.N.; AKOROCHEOVA, A.F.

Mechanism of the action of antifouling paints. Trudy SBS 11:  
254-261. '59. (MIRA 13:5)  
(Ships--Painting) (Copper--Toxicology) (Cirripedia)

DOLGOPOL'SKAYA, M.A.

Development of fouling as affected by the depth of submersion in offshore waters of the Black Sea in the region of the Crimea. Trudy SBS 12: 192-208 '59.

(MIRA 14:10)

(BLACK SEA—MARINE BIOLOGY)

DOLGOPOL'SKAYA, M.A.

Biological method for testing the effectiveness of antifouling  
coatings. Trudy SES 12:209-218 '59. (MIRA 14:10)  
(PROTECTIVE COATINGS--TOXICOLOGY)

DOLGOPOL'SKAYA, M.A.; GUREVICH, Ye.S.; SHAPIRO, Ye.Z.

Effect of a bacterial film on the leaching of poisons from a coat  
of antifouling paint. Trudy SBS 13:309-314 '60. (MIRA 14:3)  
(Paint—Toxicology) (Marine microbiology)  
(Fouling of ship bottoms)

DOLGOPOL'SKAYA M. A.; GUREVICH, Ye.S.

Toxicity of different poisons used in antifouling paints. Trudy 13:315-  
324 '60. (MIRA 14:3)  
(Paint—Toxicology) (Fouling of ship bottoms)

DOLGOPOL'SKAYA, M.A.; SHAPIRO, A.Z.; GORBENKO, Yu.A.

Destruction of the film-forming matrix of antifouling paints by  
marine organisms. Trudy SBS 14:303-308 '61. (MIRA 15:4)  
(Marine fouling) (Protective coatings)

DOLGOPOL'SKAYA, M.A.; AKSEL'BAND, A.M.

Effect of ultrasonic oscillations on the organisms of marine  
fouling and the process of fouling. Trudy SBS 17:309-324 '64.  
(MIRA 18:6)

VODYANITSKIY, V.A., otv. red.; DOLGOPOL'SKAYA, M.A., kand. biol. nauk. red.: GREZE, V.N., doktor biol. nauk, red.; IVLEV, V.S., doktor biol. nauk, red. [deceased]; PITSYK, O.K., kand. biol. nauk, red.; SHARPILO, L.D., red.

[Studies of plankton in the Black and Azov Seas] Issledovaniia planktona Chernogo i Azovskogo morei. Kiev, Naukova dumka, 1965. 115 p. (MIRA 18:8)

.. Akademiya nauk URSR, Kiev. 2. Chlen-korrespondent AN Ukr.SSR (for Vodyanitskiy).



VODYANITSKIY, V.A., otv. red.; DOLGOPOL'SKAYA, M.A., kand. biol.  
nauk, red.; VINOGRADOV, K.A., ~~doktor biol.~~ nauk, red.;  
GREZE, V.N., doktor biol. nauk, red.; IVLEV, V.S., doktor  
biol. nauk, red.[deceased]; KISELEVA, M.I., kand. biol.  
nauk, red.; SHARPILO, L.D., red.

[Benthos] Benthos. Kiev, Naukova dumka, 1965. 137 p.  
(NIRA 18:7)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN Ukr.SSR  
(for Vodyanitskiy).

S/190/62/004/007/004/009  
B145/B160

AUTHORS: Milovskaya, Ye. B., Dolgopol'skaya, P. I.  
TITLE: Role of amines in the polymerization with Ziegler catalysts  
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 7, 1962,  
1049-1052

TEXT: To investigate the effect of the presence of complexing compounds on the molecular weight of the reaction products obtained by polymerization with Ziegler catalysts, triethyl amine was made to react with  $\beta$ - $\text{TiCl}_3$ , and with a mixture of  $\beta$ - $\text{TiCl}_3$  with diethyl aluminum chloride in benzene and octane. 81 % amine was found in the filtrate from the reaction product obtained by 5-hr shaking of triethyl amine with  $\beta$ - $\text{TiCl}_3$  (molecular ratio = 0.46 : 1) in benzene at 20°C. If there is more  $\text{TiCl}_3$  than amine, the amine in the filtrate decreases, to 27 % at  $\text{TiCl}_3$  : amine = 4 : 1 for instance. Octane is a less active solvent than benzene

Card 1/3

Role of amines in the...

S/190/62/004/007/004/009  
B145/B180

(76 and 77 % amine in the filtrate at a ratio of 1 : 1). Triethyl amine and diethyl aluminum chloride yield a stable complex: Gaseous products did not form when a 0.61 molar solution of the complex was kept at 115°C for 10 hrs. In one experiment, triethyl amine was added to a mixture of  $\beta$ - $\text{TiCl}_3$  and diethyl aluminum chloride. In a second, the amine was caused to react with  $\text{TiCl}_3$  for 5 hrs before adding the diethyl aluminum chloride.

The reaction was then continued for another 2 hrs. In the first case with the molar ratio  $(\text{C}_2\text{H}_5)_2\text{AlCl}_2 : \text{TiCl}_3 : \text{amine} = 1.44-2.1 : 1 : 1$ , more than 90 % amine was found in the complex containing the organoaluminum compound. In the second, with the molar ratio 2.2-3.6 : 1 : 1, 86 % amine was found. The results confirm that the activity of the organoaluminum compound is higher than that of  $\text{TiCl}_3$ . They show that the

molecular weight is increased by polymerization with Ziegler catalysts in the presence of amines, owing to the formation of a complex. This reduces the concentration of active organoaluminum compounds which could expel the polymer chain from the catalyst surface. B. A. Dolgoplosk is thanked for his assistance. There are 3 tables. The most important

Card 2/3

Role of amines in the...

S/190/62/004/007/004/009  
B145/B180

English-language references are: K. Vesely, J. Polymer Sci., 34, 46, 1959; E. Badin, J. Amer. Chem. Soc., 80, 6549, 1958; G. Natta, J. Pasquon, E. Giachetti, Makromol. Chem., 24, 258, 1957; M. Antler, A. Leubengauer, J. Amer. Chem. Soc., 77, 5250, 1955.

ASSOCIATION: Institut vysokomolekulyarnykh soyedineniy AN SSSR (Institute of High-molecular Compounds AS USSR)

SUBMITTED: April 21, 1961

Card 3/3

44421

S/190/62/004/010/007/010  
B144/B186

67330  
AUTHORS: Milovskaya, Ye. B., Dolgoplosk, B. A., Dolgopol'skaya, P.I.

TITLE: Interaction of organoaluminum compounds with ethyl chloride  
in connection with the polymerization process

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 10, 1962,  
1503-1506

TEXT: A quantitative study of the interaction between triethylaluminum (I) or diethylaluminum chloride (II) with ethyl chloride in octane showed that hardly any reaction takes place below 80°C. On addition of benzene the reaction with I was scarcely affected, but the reaction with II became very intensive; it resulted in the initially colorless solution becoming a yellow, and in demixing. The organoaluminum compound was completely decomposed and HCl separated. Without ethyl chloride no reaction occurred in the presence of aromatic solvents. Maximum

reactions were observed at 20 - 50°C with molar ratios of 3 and 12 between xylene and II, and of 2 between naphthalene and II, the ratio

Card 1/2

Interaction of organoaluminum ...

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B144/B186

between  $C_2H_5Cl$  and II being in both cases 28. The products obtained,  $C_2H_5AlCl_2$  and  $AlCl_3$ , are cationic catalysts. Tertiary amine prevented any reaction of this kind, since it is a stronger complexing agent than the organoaluminum compound. Introduction of 0.5 mole of I per mole of II into the system completely suppressed the reaction, since the  $R_3Al + RAlCl_2 \rightleftharpoons R_2AlCl$  equilibrium was shifted toward  $R_2AlCl$ , resulting in a reduction of cationic activity. This effect can be used to eliminate cationic processes when polymerization is conducted in the presence of Ziegler catalysts, ethyl chloride, and aromatic hydrocarbons. There are 2 tables.

ASSOCIATION: Institut vysokomolekulyarnykh soedineniy AN SSSR  
(Institute of High-molecular Compounds AS USSR)

SUBMITTED: June 12, 1961

Card 2/2

S/190/63/005/001/019/020  
B117/B186

AUTHORS: Milovskaya, Ye. B., Dolgopel'skaya, P. I.

TITLE: Initiation of radical polymerization by peroxide derivatives of organoaluminum compounds

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 151

TEXT: The polymerization of vinyl acetate up to  $-25^{\circ}\text{C}$  can be efficiently initiated by systems based on aluminum alkyl derivatives with cresol peroxide or oxygen. At low temperatures, a polymer with  $\eta_{\text{sp}}/c = 1.26$  is formed with  $\text{Al}(\text{C}_2\text{H}_5)_3 - \text{O}_2$ . The hitherto unused system  $\text{Al}(\text{C}_2\text{H}_5)_3 - \text{benzoyl peroxide}$  proved highly active. With a concentration  $\eta_{\text{sp}}/c = 0.47$  the yield of polymer with  $\eta_{\text{sp}}/c = 0.47$  was 27% after 8 hrs at  $-25^{\circ}\text{C}$ . At the same ratio but at  $20^{\circ}\text{C}$  the reaction rate is hard to regulate. The initiation in the system  $\text{Al}(\text{C}_2\text{H}_5)_3 - \text{benzoyl peroxide}$  is apparently due to a reaction of the organoaluminum compound with the carbonyl group of

Card 1/2

Initiation of radical polymerization ...

S/190/63/005/001/019/020  
B117/B186

the peroxide, and subsequent decomposition via the O-O bond. This assumption is confirmed by the fact that no polymerization occurs in the substitution of azyl peroxide by the peroxide of tertiary butyl. Similar systems can be produced on the basis of alkoxy and halogen alkyl derivatives of aluminum. [Abstracter's note: Essentially complete translation.]

SUBMITTED: April 7, 1962

Card 2/2



ACCESSION NR: AP4030352

S/0190/64/006/003/0412/0416

AUTHORS: Milovskaya, Ye. B.; Zinuravleva, T. G.; Dolgopol'skaya, P. I.; Veselova, L. I.

TITLE: Radical polymerization of polar monomers induced by  $AlR_3$  - benzoyl peroxide

SOURCE: Vyssokomolekulyarnyye soyedineniya, v. 6, no. 3, 1964, 412-416

TOPIC TAGS: polymerization, radical polymerization, polymerization initiator, alkylaluminum compound, triethylaluminum, triisobutylaluminum, polar monomer, vinylacetate, methylmethacrylate, acrylonitrile, benzoyl peroxide

ABSTRACT: Polymerization of the polar monomers vinylacetate, methylmethacrylate, and acrylonitrile was conducted in the presence of the systems  $Al(C_2H_5)_3$  - benzoyl peroxide or  $Al(iso-C_4H_9)_3$  - benzoyl peroxide as initiator. The polymerization of vinylacetate was conducted in 8-9 mole/liter solutions in benzene. It was found that the optimal conditions yielding polymers with specific viscosities of 0.68 and 0.85 were 1 mole/% of  $Al(C_2H_5)_3$  (on the basis of the polymer), a 1/0.25 ratio of  $Al(C_2H_5)_3$  to benzoyl peroxide, and temperatures of -25 and 00. The polymeriza-

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ACCESSION NR: APL030352

tion of methylmethacrylate took place in a 3 mole/liter solution in dimethylformamide at -20C and in a 7-9 mole/liter solution in xylene at -20C (the polymerization in xylene proceeding at a much faster rate). The polymerization of acrylonitrile was conducted in 2-3.5 mole/liter solutions in dimethylformamide. Satisfactory results were obtained only at 20C. It was observed that here the molecular weight reached a high value within a few hours and remained practically unchanged thereafter. The authors show also that polymerization does not occur in the absence of benzoyl peroxide and that it is essential to bring the alkylaluminum portion of the initiator system in contact with the monomer before adding the benzoyl peroxide. Orig. art. has: 2 charts and 2 tables.

ASSOCIATION: Institut vyssokomolekulyarnykh soedineniy AN SSSR (Institute of High-Molecular Compounds AN SSSR)

SUBMITTED: 04Feb63

DATE ACQ: 07May64

ENCL: 00

SUB CODE: CH

NO REF SOV: 006

OTHER: 004

Card 2/2

MILOVSKAYA, Ye. B.; ZHURAVIEVA, T. G.; DOIGOPOL'SKAYA, P. I.

Peroxy derivatives of organoaluminum compounds as initiators of radical polymerization. Report No. 1: System organoaluminum compound - oxygen or isopropylbenzene hydroperoxide. Izv AN SSSR Ser Khim no. 4:720-726 Ap '64. (MIRA 17:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

DOLGOPOL'SKIY, A. B. (Moscow)

"The Theory of Probability and the Development of a Language Relationship."

Theses - Conference on Machine Translations, 15 - 21 May 1958, Moscow.

DOLGOFOL'SKIY, A. B.

"Gipoteza drevneyshogo rodstva yazykov Severnoy Yevrazii (problema foneticheskikh sootvetstviy)."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

MARENKOV, N.A.; DOLGOPOL'SKIY, A.Ya., spets.red.; KUZNETSOV, A.D.,  
red.isd-vu; DROZHZHINA, L.P., tekhn.red.

[Semidirect-flow marine engines and their servicing] Polu-  
priamotochnye sudovye mashiny i ikh obsluzhivanie. Leningrad,  
Isd-vo "Morskoi transport," 1958. 98 p. (MIRA 12:8)  
(Marine engines)

YERMILOV, Valentin Georgiyevich; DOIGOPOL'SKIY, A.Ya., spetsred.;  
DENISOV, K.N., red.izd-va; KOTLYAKOVA, O.I., tekhn.red.

[Controlling steam distribution of marine steam engines]  
Regulirovanie paroraspredelenia sudovykh parovykh mashin.  
Izd.2., dop. i perer. Leningrad, Izd-vo "Morskoi transport,"  
1961. 202 p. (MIRA 14:6)  
(Marine engines) (Steam)

YERMILOV, Valentin Georgiyevich; SHVED, A.P., dots., retsenzent;  
~~DOIGOBOL'SKIY, A.Ya.,~~ nauchn. red.; GORYANSKIY, Yu.V.,  
red.; KOILIKOVA, O.I., tekhn. red.

[Operation and testing of marine steam power plants] Tekh-  
nicheskaya ekspluatatsiya i ispytaniya sudovykh parosil'-  
nykh ustanovok. Leningrad, Izd-vo "Morskoi transport,"  
1963. 279 p. (MIRA 16:10)

(Boilers, Marine)  
(Steam turbines, Marine)



DOLGOPOL'SKIY, A.Ya.

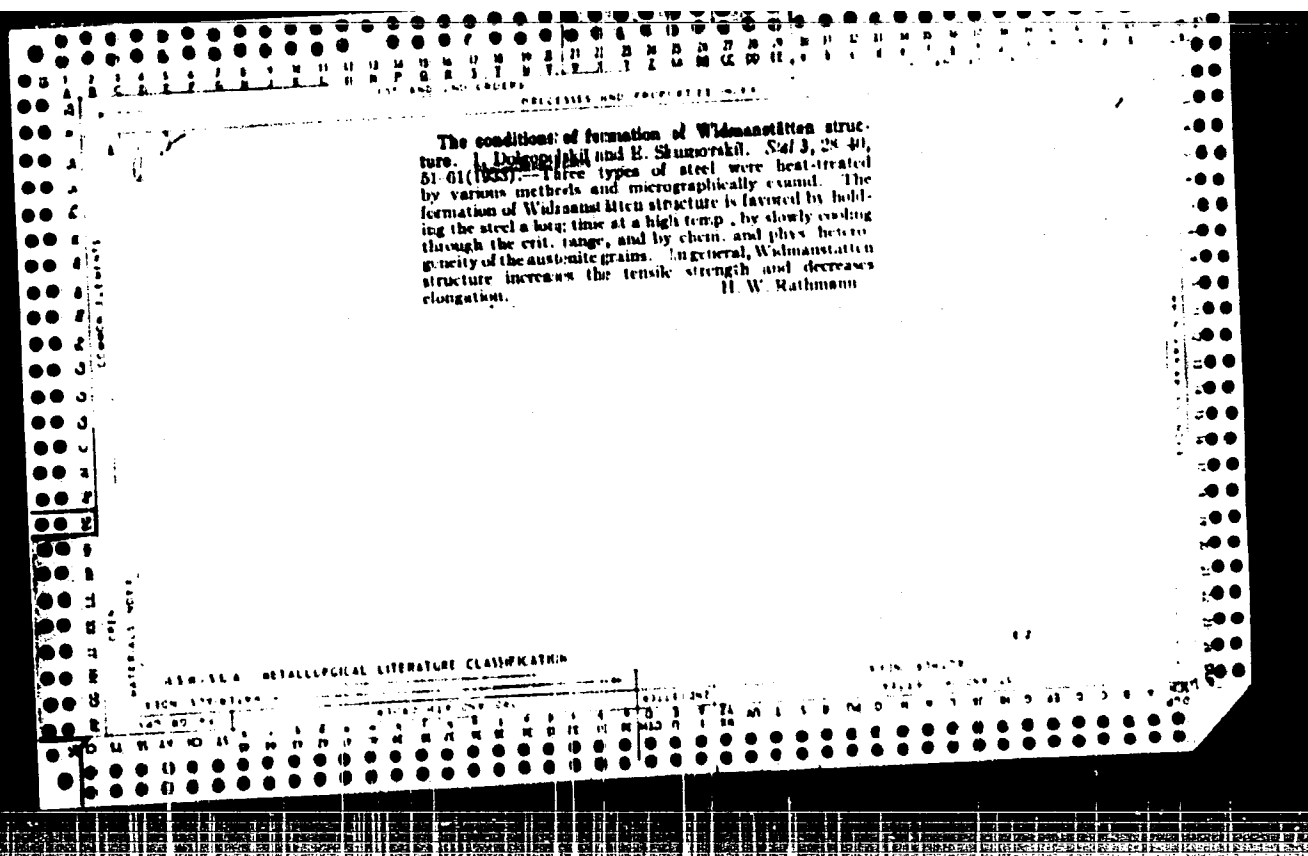
Testing the automatic control of boiler combustion on the steamship  
"Kolpino." Inform. sbor. TSNIIIM? no.94 Tekh. ekspl. mor.flota  
no.21:84-96 '63. (MIRA 17:4)

MALENKOV, Nikolay Aleksandrovich; DOLGOPOL'SKIY, A.Ya., nauchn.  
red.

[Repair of mechanisms without taking the ship out of use]  
Remont mekhanizmov bez vyvoda sudna iz ekspluatatsii. Mo-  
skva, Transport, 1965. 270 p. (MIRA 18:7)

DOLGOPOL'SKIY, I.I.; DOBROMIL'SKAYA, I.M.; BYZOV, B.A.

Hydrofluorination of vinylacetylene with a suspended catalyst.  
Zhur.prikl.khim. 31 no.11:1716-1722 N '58. (MIRA 12:2)  
(Hydrofluoric acid) (Butenyne) (Fluoroprene)



1ST. QTR. 1960 (1959)		PROCESS AND PROPERTIES INDEX		2ND. QTR. 1960 (1959)	
<p>CO</p> <p>10</p> <p>Preparing ethylene glycol from dichloroethane. A. L. Kietzanski and I. M. Datsopol'ski. <i>J. Applied Chem. (U. S. S. R.)</i> 7, 790-800 (1954). — In the presence of <math>(\text{CH}_3\text{Cl})_2</math> with <math>\text{Na}_2\text{CO}_3</math> (22.7% ethylene glycol was obtained when using a mixt. of 200 g. <math>\text{C}_2\text{H}_4\text{Cl}_2</math> and 22 g. <math>\text{Na}_2\text{CO}_3</math> which was heated to <math>180^\circ</math> for 4 hrs. at a max. pressure of 81 atm. in a rotating autoclave. The mixt. with <math>\text{NaHCO}_3</math> yielded 62.5% glycol at a pressure of 81 atm. and a temp. of <math>180^\circ</math> for 36 hrs. The use of substances such as petroleumboric acids, 2/a (cont. <math>\text{MeC}_2\text{H}_4\text{SO}_3\text{Na}</math> and Na acetate did not show any advantages. The ethylene glycol yield was highest (under semi-com. conditions) when working at <math>170-95^\circ</math> and at least 100 atm. pressure; it then amounted to 37-97%, the balance constituting vinyl chloride which was absorbed in xylene. A detailed description of the process is presented. A. A. B.</p>					
<p>ASH-11A METALLURGICAL LITERATURE CLASSIFICATION</p>					
1959-1960		1960-1961		1961-1962	
1962-1963		1963-1964		1964-1965	

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<div style="writing-mode: vertical-rl; transform: rotate(180deg);">           CORD MATERIALS INDEX CROSS REFERENCE         </div>	<div style="text-align: center; padding: 20px;"> <p>Preparation of isopropyl glycol from propylene chlorohydrin. J. H. LAMBERT and I. M. DOLOPOPOFF, <i>J. Appl. Chem. Res.</i>, 1954, 7, 1181-1191. CH<sub>3</sub>CH(OH)CH<sub>3</sub> and saturated est. NaHCO<sub>3</sub> at 210/182 atm. yield 61-65% of CH<sub>3</sub>CH(OH)CH<sub>3</sub>, CH<sub>3</sub>CH(OH)CH<sub>2</sub>CH<sub>3</sub>, and 7-8% of unsaturated compounds (chiefly CH<sub>3</sub>CH=CHCH<sub>3</sub>, CH<sub>3</sub>CH=CHCH<sub>2</sub>CH<sub>3</sub>). Na<sub>2</sub>CO<sub>3</sub> is substituted for NaHCO<sub>3</sub>, the yield of (I) now 7-45%. R. T.</p> </div>																																																												
<div style="display: flex; justify-content: space-between;"> <span>ADD-51A METALLURGICAL LITERATURE CLASSIFICATION</span> <span>8-27</span> </div>																																																													
<div style="writing-mode: vertical-rl; transform: rotate(180deg);">           CORD MATERIALS INDEX CROSS REFERENCE         </div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="10" style="text-align: left; padding: 2px;">           SEARCHED INDEXED  <small>SEARCHED AND INDEXED</small> </th> <th colspan="10" style="text-align: left; padding: 2px;">           SERIALIZED  <small>SERIALIZED AND INDEXED</small> </th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td><td style="text-align: center;">5</td><td style="text-align: center;">6</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">9</td><td style="text-align: center;">10</td> <td style="text-align: center;">11</td><td style="text-align: center;">12</td><td style="text-align: center;">13</td><td style="text-align: center;">14</td><td style="text-align: center;">15</td><td style="text-align: center;">16</td><td style="text-align: center;">17</td><td style="text-align: center;">18</td><td style="text-align: center;">19</td><td style="text-align: center;">20</td> </tr> <tr> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td><td style="text-align: center;">5</td><td style="text-align: center;">6</td><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">9</td><td style="text-align: center;">10</td> <td style="text-align: center;">11</td><td style="text-align: center;">12</td><td style="text-align: center;">13</td><td style="text-align: center;">14</td><td style="text-align: center;">15</td><td style="text-align: center;">16</td><td style="text-align: center;">17</td><td style="text-align: center;">18</td><td style="text-align: center;">19</td><td style="text-align: center;">20</td> </tr> </tbody> </table>	SEARCHED INDEXED <small>SEARCHED AND INDEXED</small>										SERIALIZED <small>SERIALIZED AND INDEXED</small>										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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CA

10

Hydrolysis of alkali chlorides. A. L. Kichasik and I. M. Dubovskii. Zh. Khim. 42, 771, Mar. 31, 1935. (Chem. Abstracts 30, 1174) Hydrolyzed continuously by means of  $\text{Na}_2\text{CO}_3$  or  $\text{NaHCO}_3$  in tube stills at 170-200° at a pressure of at least 75 atm., which is built up either by heating or by pumping  $\text{CO}_2$  or other inert gas.

MIN. LIT. METALLURGICAL LITERATURE CLASSIFICATION

CONDENSATION OF CHLORIDES, OBTAINED IN THE SYNTHESIS OF  
CHLOROPRENE RUBBER, WITH POLYIMIDES. A. L. KIRCHANSKI,  
I. KROKHIN and M. SIVER. J. Rubber Ind. (U. S.  
S. R. 1960, No. 10, 1079 IT). A detailed description of  
the methods of prepn. of condensation products of di-  
chlorides (CH<sub>2</sub>Cl-CH=CHCl) with Na polysulfide and  
of the residual mixt. after hydrochlorination of vinyl-  
acetylene with Na polyimide. The products are de-  
scribed. A. Pestoff



**Preparation of chloroprene.** A. Kabanikh, I. Iud; *gipidokh* and K. Chervyachov. *Gumirobo and Khim. tekhn. S. S. R.* 1937, No. 1, 31-4. Expts. on a lab. and bench scale were carried out to det. the optimum conditions in the prepn. of chloroprene (I) by Carother's method. The use of 2, 4, 6, 8 and 10 times the equiv. amt. of HCl shortened the time of reaction to 1 hr. but did not increase the yield of I; in some cases it even decreased it, and increased the yield of 2-buadiene, 2,4-chloroprene (II). A concn. of HCl below 35% or above 37% at the start gave a lower yield of I, which reached 70% under optimum conditions. The optimum time of reaction was 1 hr.; a shorter period decreased the yield, and a longer period up to 4 hrs. did not increase it. The optimum temp. at atm. pressure was 20-25°; a lower temp. retarded the reactions and lowered the yield, and a higher temp. led to the formation of II. The best results were obtained from solns. of styrene and C<sub>6</sub>H<sub>6</sub>. The optimum concn. of CH<sub>2</sub>=CH=CH<sub>2</sub> for the reaction was 45-50%. S. I. Makhovskiy

ca

Investigation of the acids formed in the oxidation of the solar oil fraction of Emba petroleum. A. L. Kichan-skil, I. M. Dolgopolski and R. M. Sorokina. *Trans. State Inst. Applied Chem.* (U. S. S. R.) No. 31, 31-45 (1937); *Chem. Zentr.* 1938, I, 1367. The acids obtained by the oxidation of the solar oil in the air in the presence of Mn naphthosulfate according to the method of G. Petrov show an acid no. of 100.3, sapon. no. 127.3, and I no. (Hobl) 11.4. It is not possible to det. unsaponifiable matter by the method of Spitz and Hönig, as this method gives 86% unsaponifiable matter as against 30% by the method of Fehleisen. The acids can be readily esterified with MeOH and HCl. Only 30-35% of the ester mixt. can be distd. off without decumpr. at 3-2 mm Hg; the major portion bps. 100-38°. Esters boiling within narrow limits cannot be obtained. The esters belong to the naphthoic acid series C<sub>10</sub>H<sub>7</sub>CO<sub>2</sub>R and C<sub>10</sub>H<sub>5</sub>CO<sub>2</sub>R. From ester fractions boiling within fairly narrow limits acids having the empirical formulas C<sub>10</sub>H<sub>7</sub>CO<sub>2</sub>H and C<sub>10</sub>H<sub>5</sub>CO<sub>2</sub>H can be isolated. These can be converted into the chlorides and the latter condensed with anhydrous ammonia, but no crystalline products are obtained. It is also impossible to obtain crystalline products by treating the acid amides with α-naphthalene-sulfoxide and with dibromochloroacetic acid chloride.

M. G. Moore

72



Synthesis of esters from acetylene tetramer and from the technical mixture of acetylene polymers. A. I. Kiklanski, L. M. L'kovskaya, and D. M. Krasovskaya. *J. Applied Chem. (USSR)* 19, 5:1 (1940) (in Russian). — The study of the product, obtained in the presence of vinylacetylene (1), and of the product, obtained in the presence of PNCI, with RCOH showed that increase of the duration of condensation, substitution of KOH for metallic Na, and increase of the RCOH content led to an improved yield of the condensate. Attempts to polymerize the (1) of the condensate. Attempts to polymerize, showed that, solely of tech. 1, on mass and in amount, showed that the polymerization is extremely slow at 100°C, even with BuOH as catalyst. Acetylene tetramer (41 g) and 100 g. RCOH (contg. 5 g. Na and 0.3 g. 1-CuCl<sub>2</sub>·NH<sub>3</sub>), heated 35 hrs. at 100° under reflux condenser, yielded 1.20 g. deriv. C<sub>12</sub>H<sub>10</sub>, bp 67-73°, n<sub>D</sub><sup>20</sup> 1.0958, d<sub>4</sub><sup>20</sup> 0.9110. Tech. 1 was reacted similarly using Na or 1.20 g. RCOH as condensation catalyst, with resulting yields of crude condensates ranging up to 50 g., (using KOH catalyst). The highest yields were obtained in 30-hr. condensations at 6-8 molar amt. of RCOH. Use of BuOH gave a small amt. of products, bp. 67-140°, which were not identified. G. M. Krasovskaya

NO55+6

10

Ca

**Explosive properties and decomposition of copper derivatives of acetylene hydrocarbons.** I. M. Dolgopud'skiy, I. M. Dolgopud'skiy, K. S. Mikhaylova, and P. V. Nakhina. *J. Applied Chem. (U.S.S.R.)* 10, 1281-90 (1940) (in Russian). (1) The ppt. obtained by natg. a soln. of CuCl with C<sub>2</sub>H<sub>2</sub> under exclusion of air, washing with abs. alc. and ether, and drying in a stream of C<sub>2</sub>H<sub>2</sub> at 50°, corresponds approx. to the formula Cu/C<sub>2</sub>H<sub>2</sub> (I) (C 14.47, H 0.87, theoretical C 14.78, H 1.19). This is confirmed by the detn. of Cu by the iodometric method (see below under 2). By the same method, the analogous Cu derivs. of CH<sub>3</sub>CH<sub>2</sub>C≡CH and CH<sub>3</sub>CH<sub>2</sub>C≡CCH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub> correspond to Cu<sub>2</sub>Cu (II) and Cu<sub>2</sub>Cu (III), resp., without H<sub>2</sub>O. Explosiveness of the Cu derivs. was tested under a load of 4 kg. falling from heights of 10 to 30 cm.; dry I and II detonated at 30 cm., dry III at 20 cm., while the dry Cu deriv. of the tech. gas mist. produced in low temp. polymerization of C<sub>2</sub>H<sub>2</sub> (IV) detonated under 15 cm. which is more readily than the Cu derivs. of the pure acetylenic hydrocarbons. I with 18.4% moisture detonated only at 30 cm., with 40.1% it did not detonate under 30 cm. Likewise II with 64.8% and III with 74.7% moisture did not detonate under 30-40 cm. Decompos. was tested on 0.2-g. samples with 15 ml. of 5, 10, and 15% HCl in a stream of N<sub>2</sub> with absorption in CuCl of the gas evolved and analysis of the residue for Cu. I and IV were decompd. in 1 hr. by 15% HCl in the cold, by 10% HCl at 30-35°, II and III were decompd. by 10% HCl in the cold in 40-60

min. The Cu-contg. residues of the decompn. are neither explosive nor inflammable. (2) Analysis of the acetylenic univalent Cu derivs. by oxidation with concd. HNO<sub>3</sub> and gravimetric detn. of CuO proved unsatisfactory. Likewise, Strehlsky's method of soln. in HCl, oxidation by boiling with excess K<sub>2</sub>H<sub>2</sub>O<sub>8</sub>, treating with Reubini's KCNS + KI soln. (C 4.15, 350), and titration of the soln. with Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub> gives too low Cu values throughout. Two methods, based on detn. of Cu in cuprous form, were found adequate: the dichromate method, involving soln. in 15-18% HCl, soln. in boiling HNO<sub>3</sub>, pptn. of the hydrazine salt (turning the color from greenish to light violet) and of NH<sub>4</sub>OH.HCl, and boiling to ppt. Cu<sub>2</sub>O which is dissolved in hot Fe(80%), and titrated with K<sub>2</sub>C<sub>2</sub>O<sub>4</sub> in the presence of Ph.NH<sub>2</sub>.H<sub>2</sub>SO<sub>4</sub> as indicator. In the iodometric method, a 0.1-0.2-g. sample is dissolved in 15-20% HCl, evaporated to 2-3 ml., treated with about 25 ml. concd. HNO<sub>3</sub>, and boiled to complete oxidation (color turning from green to blue); the soln. is boiled with 2-3 ml. concd. H<sub>2</sub>SO<sub>4</sub> until disappearance of NO<sub>2</sub>; NH<sub>2</sub> is then added and its excess removed by boiling; after cooling, H<sub>2</sub>SO<sub>4</sub> is added, then 10-20 ml. 10% KI, and the soln. is titrated with 0.025 N Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub>. N. Thon

ASB-35A METALLURGICAL LITERATURE CLASSIFICATION

Stabilization of acetylene polymers. I. M. Doigopol'ski and V. A. Rastashkev. *J. Appl. Chem. (U.S.S.R.)* 19, 1291-1302 (1946) (in Russian). (3) The rate of absorption of O gas at room temp. by divinylacetylene  $\text{CH}_2=\text{CH}(\text{C}\equiv\text{CH})-\text{CH}=\text{CH}_2$  (DVA) (90-95% pure) with 30-10%  $\text{CH}_2=\text{CH}(\text{C}\equiv\text{CH})-\text{CH}=\text{CH}_2$ , resulting in the formation of peroxide, was measured manometrically on 5 g. samples, in the absence and in the presence of various antioxidants, over several days to weeks. Without addn. of stabilizer, max. absorption in the light attained 130 ml./g. after 12 days, in the dark 140 ml./g. in 18 days. The effect of light is very slight. Solvents commonly used in the polymerization of DVA (1%  $\text{CH}_2$ , xylene) have no inhibiting effect. Likewise, addn. of 2% of inorg. substances (S, FeS, KI, I,  $\text{NaHSO}_3$ ), quinoline, pyridine, resorcinol, phloroglucinol, benzidine,  $\beta$ -naphthol, aminophenol, metal, and thiourea, had very little or no effect. Ethylamine and  $\text{MeCH}_2\text{NPh}$  (5%) had a slowing-down effect only during the initial 12 days or so after which absorption ceased abruptly. Two percent aniline kept down absorption (below 10 ml./g.) for about 48 days; the same was observed with 2% toluidine, the absorption of O beginning to rise again after 48 days. With 2% phenol DVA remained stable for about 18 days, after which O absorption rose and remained at an approx. level of about 18 ml./g. up to

18 days. Pyrogallol is effective at 1% (absorption not over 10-15 ml./g. for 30 days), whereas at 1% it protects only for about 10 days, with rapidly growing absorption setting in suddenly at that stage. Satisfactory antioxidant protection was afforded by 2% resorcinol, 2% thionol (1) absorption below 8 ml./g. for 72 days), fairly satisfactory by both 1% and 2% guaiacol (not over 15-18 ml./g. up to 96 days). Hydroquinone protects to the extent of not over 8 ml./g. absorbed over 72 days, when present in at least 2%. A protective power of about the same order of effectiveness (2-3 months unless stained) was shown by 2% phenyl- $\beta$ -naphthylamine,  $\beta$ -naphthylamine,  $\alpha$ -naphthylamine, 1-2% diphenylamine (1 month), and 1-2%  $\alpha$ -naphthylamine. These compounds are sufficiently not in both DVA and in the commonly used solvents. A 5 ml./g. uptake per 24 days was noted, also on a tech. DVA mixt. contg. in addn. to  $\text{CH}_2=\text{CH}(\text{C}\equiv\text{CH})-\text{CH}=\text{CH}_2$ ,  $\text{CH}_2=\text{CH}(\text{C}\equiv\text{CH})-\text{CH}=\text{CH}_2$ , the "tetramer" 1,3,7-octatrien-3-yne, acetylenethiatriene, etc. (2) On boiling at 90-100° for several hrs. in 5-10% O dild. with N, without and with  $\text{PhCl}$  (5 g./5 g. DVA), only aniline proved to slow down absorption of O by DVA. In a new polymerization solvent, the hydrocarbon fraction b. 120-30° obtained in the synthesis of  $\text{CH}_2=\text{CH}(\text{C}\equiv\text{CH})-\text{CH}=\text{CH}_2$  and contg. acetylenes (5 g. solvent/5 g. DVA), some antioxidant protection was obtained (in 3-4 hrs. boiling) with various combinations of stabilizers (e.g.  $\text{EtNH}_2$ , 0.1 + alkyl- $\alpha$ -naphthylamine 0.1). That boiling does not destroy the antioxidant properties was shown by the fact that the action of the best stabilizers in the cold was found unchanged after prolonged boiling (up to 200 hrs.). N. Thon

COMMON ELEMENTS		PRINCIPAL AND PROPERTIES INDEX		CLASSIFICATION																																																													
CA	Acetylene tetramer. I. M. Dolgoploski, I. M. Dobromil'skaya, and S. Ya. Boki. J. Gen. Chem. (U.S.S.R.) 17, 1111-15 (1947) (in Russian); cf. C.A. 41, 6270b. — Polymerization of vinylacetylene with $\text{CuCl}_2 \cdot \text{NiCl}_2$ in the absence of $\text{CuI}$ , at 25-35° gives an acetylene tetramer, $\text{C}_8\text{H}_8$ , which is given the formula $\text{CH}_2\text{CHCH}::\text{CHCH}::\text{CCH}::\text{CH}$ . Tech. vinylacetylene was washed with $\text{NH}_4\text{OH}$ soln. and $\text{H}_2\text{O}$ ; dried with $\text{CaCl}_2$ and distd. $\text{NH}_4\text{Cl}$ (390 g.) in 450 cc. $\text{H}_2\text{O}$ , 1000 g. $\text{CuCl}_2$ , and 100 g. $\text{Cu}$ shavings were mixed and reduced by heating on a water bath in a $\text{N}_2$ atm. The cooled soln. was treated with 26 g. 37% $\text{HCl}$ and vinylacetylene was fed into the mixt. with agitation 7-8 days (4-6 hrs. daily) until 400 g. was utilized. The yellow complex disappeared gradually and an oily layer appeared. Distn. with steam, followed by fractionation, gave the desired product, bp 51.5-3°, d <sub>4</sub> 1.246, $n_D^{20}$ 1.5793, colorless, with characteristic odor. On standing this turns yellow and polymerizes to a transparent solid which deionates on shock; it does not react with $\text{AgNO}_3$ (either aq. or ammoniacal), nor with $\text{K}_2\text{Cr}_2\text{O}_7$ . Bromination with 3 moles $\text{Br}$ in $\text{CHCl}_3$ gave $\text{C}_8\text{H}_8\text{Br}_4$ , m. 142° (from hot $\text{CHCl}_3$ , then dry $\text{MeOH}$ ), which loses 6 $\text{Br}$ on heating 2 hrs. with 0.5 $\text{N}$ $\text{KOH}$ and 6 $\text{Br}$ in 6 hrs. The mother liquor from this bromide gave an isomeric octabromide, m. 132° (by washing the crystals with hot petr. ether), and a 3rd isomer, m. 158° (solution not given). Oxidation of acetylene tetramer by alk. $\text{KMnO}_4$ gave $(\text{CO}_2\text{H})_4$ , $\text{HCO}_2\text{H}$ , and no $\text{AcOH}$ , thus confirming the structure given above. O. M. Kozlovskii	10																																																															
ASB-514 METALLURGICAL LITERATURE CLASSIFICATION																																																																	
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15" AND 11" ORDER		PROCESS AND PROPERTIES INDEX	
CA		10	
<p>The structure of ethynylvinyl and the preparation of its derivatives. I. M. Dolgopolskii, I. M. Dobromil'skaya, and K. N. Ponomareva. <i>J. Gen. Chem. (U.S.S.R.)</i> 17, 1893-8 (1947) (in Russian); cf. Klebanik, et al., <i>Bull. Acad. Sci. U.S.S.R.</i> 1948, 31. — Ethynylvinyl (I), obtained by fractionation of the higher fractions of polymerization of <math>C_4H_6</math>, followed by absorption in <math>NH_3</math>-<math>Cu_2Cl_2</math>, then liberation from the <math>Cu</math> salt, drying, and redist., b.p. 23-30°, <math>d_4^{20}</math> 0.7889, <math>n_D^{20}</math> 1.5006. I with an alk. soln. of <math>Kalgl.</math> gave a colorless acid, which yellows in the air and can be crystd. from <math>EtOH</math>; it darkens at 180° but does not melt; its compo. is <math>(C_4H_5)Hg</math>. Decompos. by 10% <math>HCl</math> gave a product with all the properties of I. Oxidation of the <math>Hg</math> salt by atm. <math>O</math> followed by <math>HCl</math> treatment in the cold gave a crude hydration product, <math>d_4^{20}</math> 0.9371, <math>n_D^{20}</math> 1.409, b.p. 123-3°, which formed a semicarbazone, m. 143-5°. I is best hydrated as follows: 30 g. <math>Hg</math> oxide and 44 g. <math>H_2SO_4</math> (d. 1.84) are treated at room temp. slowly with 21.5 g. I and stirred 1-1.5 hrs.; after distn. with steam in the presence of hydroquinone there was obtained <math>C_4H_5CH_2CH_2CO_2H</math>, b.p. 28°, <math>d_4^{20}</math> 0.9998, <math>n_D^{20}</math> 1.5019; <i>p</i>-nitrophenylhydrazones, m. 102°; semicarbazone, m. 147° (from <math>MeOH</math>); maleic anhydride adduct, m. 85°. The ketone is a skin irritant. (I. M. Kozolapoff)</p>			
ASR-512 METALLURGICAL LITERATURE CLASSIFICATION			
STOCK SYMBOL		STOCK SYMBOL	
STOCK SYMBOL		STOCK SYMBOL	



20-2-25/60

The Role of Complex Compounds and Cations of Complex-Forming Components  
in the Polymerization of Acetylene

from the sphere of coordination of copper and take their place. The formation of complex compounds is confirmed by the substantial increase in the solubility of acetylene and of vinylacetylene, together with higher solubility of the  $\text{CuCl}$ , and furthermore by the subsequent crystalline precipitation from the solution, this precipitation containing the complexly bound hydrocarbons. The composition of the precipitation showed that it changes in accordance with the nature of the  $\text{MCl}$ -cation, furthermore also in accordance with the quality of the acetylene hydrocarbons, and in dependence on the ratio  $\text{CuCl} : \text{MCl}$  in the solution. The authors of the paper under review obtained the complex compounds in their individual state and confirm their composition as given by Zürich and Ginsburg. Furthermore, the authors isolated complex compounds of the acetylene and of its tetramers, as well as of divinylacetylene. Their empiric formulae are given. If acetylene or vinylacetylene is solved in  $\text{CuCl-MCl}$  solutions, then the concentration of the hydrogen atoms increases; at polymerization of vinylacetylene, on the other hand, it decreases. But in the latter case further complex compounds are formed which

Card 2/4

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in the Polymerization of Acetylene

contain HCl. A close relationship between the ionizing capacity of the complex compounds and the catalytic activity of their solutions was discovered. The latter increases when the hydrogen ionization in the hydrocarbon is increased. Water is necessary for the ionic hydration of the complex compounds. Without water, no ionization takes place, and consequently also no acetylene polymerization. The above confirms the ionic mechanism of acetylene polymerization. The dependence of the degree of ionization of the acetylene complex compounds is reproduced on Figure 3 contained in the paper under review. Also amino salts can be used as complex components. The amines are arranged in an increasing series with respect to their degree of polarity, characterized by the constant of dissociation. Figure 4 of the present paper illustrates the dependence of the activity of a catalyzer upon the quality of the amines. The transformation of vinyl-acetylene into acetylenetetramer increases with decreasing molecular weight of the cation. The activity of the catalyzer

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The Role of Complex Compounds and Cations of Complex-Forming Components  
in the Polymerization of Acetylene

decreases as the polarity increases. The antipolarizing effects of the cations  $M^+$  are the higher the greater the field strength of the cation or its positive polarity for the amino salts. There are 4 figures, and 4 references, 3 of which are Soviet.

ASSOCIATION: All-Union Scientific Research Institute for Synthetic Rubber  
imeni S. V. Lebedev (Vsesoyuznyy nauchno-issledovatel'skiy  
institut sinteticheskogo kauchuka im. S. V. Lebedeva)

PRESENTED: January 19, 1957, by B. A. Kazanskiy, Member of the Academy

SUBMITTED: January 19, 1957

AVAILABLE: Library of Congress

Card 4/4

AUTHORS: Dolgopol'skiy, I. M., Tumanova, A. V. SOV/79-28-7-14/64  
Dobromil'skiya, I. M., Yegudina, M. F.

TITLE: The Synthesis of Ethyl- and 2-Propylbutadiene-1,3 (Sintez 2-etil-i 2-propilbutadiyenov-1,3)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 7, pp 1782 - 1784 (USSR)

ABSTRACT: Based on their experience collected in the previous paper (Ref 7) the authors carried out again the synthesis of butadiene from  $\alpha$ -chloro-methyl allene. When corresponding magnesium alkyl halides act, upon it, 2-ethyl- and 2-propyl butadienes-1,3 are obtained. The yield of alkyl butadienes under the most favorable conditions amounted to a maximum of 26%, as side reactions took place. A dimer of propylbutadiene-1,3; n-hexane and hexadiene-1,3 was separated as side product. Besides a considerable amount of polymers was obtained which point to a condensation of two molecules of  $\alpha$ -chloro methyl allene under the formation of octatetraene as well as to its subsequent isomerization to a compound with a system of double compounds which again polymerizes (reaction scheme). The properties of the synthesized alkyl butadienes are mentioned in the table.

Card 1/2

The Synthesis of Ethyl- and 2-Propylbutadiene-1,3

SOV/79-28-7-14/64

According to Kaufmann (Kaufman) by titration with bromine the authors determined that these compounds exhibit an unsaturated character. To prove that the alkyl butadienes have a diene structure they were condensed with maleic acid anhydride in benzene solution. The melting points of the products obtained from it are also shown in the table. There are 1 table and 9 references, 3 of which are Soviet.

SUBMITTED: June 13, 1957

1. Butadienes--Synthesis    2. Condensation reactions

Card 2/2

DOLGOFOL'SKIY, I.M.; DOBILIN, Z.F.; YASHINA, A.P.; TEOFIMOVA, P.N.

Polymerization of vinyl acetylene. Zhur. prikl. khim. 31 no.8:1234-1240  
Ag '58. (MIRA 11:10)

(Polymerization) (Butenyne)

DOLGOPOL'SKIY, I.M.; KLEBANSKIY, A.L.; KRASINSKAYA, D.M.

Polymerisation of divinylacetylene. Zhur. prikl. khim. 31 no.9:  
1403-1408 S '58. (MIRA 11:10)  
(Acetylene) (Polymerisation)

DOLGOPOL'SKIY, I.M.; DOBROMIL'SKAYA, I.M.; BYSOV, B.A.

Synthesis of fluoreprene over a solid catalyst. Zhur. prikl. khim.  
31 no.10:1534-1541 O '58. (MIRA 12:1)

I.Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo  
kauchuka imeni S.V. Lebedeva.

(Fluoreprene)



5 (3)

AUTHORS: Dolgopoli'skiy, I. M., Blyumental', M. Kh. SOV/79-29-8-12/81

TITLE: On the Complexes of Vinyl Acetylene With Cuprous Chloride in Hydrochloride Solutions

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2512 - 2517 (USSR)

ABSTRACT: In continuation of the papers of references 1 - 10 it was the purpose of the present paper to investigate the conditions of synthesis as well as the composition of the complexes which are formed from vinyl acetylene with CuCl in hydrochloride solutions. It was ascertained that crystalline complexes of different composition are formed in these solutions. Due to the formation of these compounds, a higher solubility of cuprous chloride in hydrochloric acid was observed in its reaction with vinyl acetylene. The composition of the complexes does not depend on the temperature but on the concentration of hydrochloric acid within the solution. The crystalline compounds, produced by applying 10% hydrochloric acid, on the average have a composition of 65.4% CuCl and 34.5%  $C_4H_4$ , which corresponds to the formula  $CuCl \cdot C_4H_4$ ; the compounds obtained with 20% hydrochloric

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On the Complexes of Vinyl Acetylene With Cuprous  
Chloride in Hydrochloride Solutions

SOV/79-29-8-12/81

acid have the composition of 79.2% CuCl and 20.8% C<sub>4</sub>H<sub>4</sub>, which corresponds to the formula (CuCl)<sub>2</sub>·C<sub>4</sub>H<sub>4</sub>. By application of 15% hydrochloric acid a mixture from the two above complex compounds probably results. A considerable amount of vinyl acetylene remains in a complex-bound state and may be separated by desorption. Decomposition of the complex, under separation of vinyl acetylene and the therewith partially formed chloroprene results on saturation of the above solution with hydrochloric acid. It was ascertained that by the action of hydrogen chloride upon the crystalline complex compounds (CuCl)<sub>2</sub>·C<sub>4</sub>H<sub>4</sub> and CuCl·C<sub>4</sub>H<sub>4</sub> vinyl acetylene is partly replaced by HCl under formation of a crystalline complex of the composition (CuCl)<sub>4</sub>·C<sub>4</sub>H<sub>4</sub>·HCl. A figure shows the special apparatus used for the synthesis of the complex compounds. More detailed data on the experiments are given in 3 tables. There are 1 figure, 3 tables, and 11 references, 4 of which are Soviet.

SUBMITTED:  
Card 2/2

March 17, 1958

SOV/80-59-1-31/44

AUTHORS: Dolgopol'skiy, I.M., Dobromil'skaya, I.M. and Byzov, B.A.

TITLE: Chemical Transformations of Mercury Salts and Their Role in the Hydrofluorination Reaction of Vinylacetylene (Khimicheskiye prevrashcheniya soley rtuti i ikh rol' v reaktsii gidroftorirovaniya vinilatsetilena) Third Communication (Soobshcheniye III)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, <sup>37</sup>Nr 1, pp 194-201 (USSR)

ABSTRACT: The authors investigated the composition of the catalytic mixture; the character of its changes in the hydrofluorination process of vinylacetylene; the mechanism of this reaction, and the formation of resins taking place during this process. The effect of various factors and conditions of experiments on the run of this process was also investigated and the results are presented in the tabular and graphical forms. The main results are as follows: 1. the change in the content of mercury and its salts at the continuous operation of the catalyzer is shown; 2. the possibility of a considerable lengthening of continuous operation with the maintenance of the constant activity of the catalytic mixture is demonstrated, which is attained by means of the periodic renewal of the catalyzer composition; 3. the possible mechanism of the hydrofluorination reaction and of the several side reactions occurring during

Card 1/2

SOV/60-59-1-31/44

Chemical Transformations of Mercury Salts and Their Role in the Hydrofluorination Reaction of Vinylacetylene

the synthesis of fluoprene out of vinylacetylene is considered. There are 3 graphs, 6 tables and 4 references, 3 of which are Soviet and 1 American.

ASSOCIATION: October 4, 1957

Card 2/2

DOLGOPOL'SKIY, I.M.

FOIA b 7 - D  
DATE 10/10/2014

Landmark. Technology machine-Las Vegas, Col. City Center, 1910-1915

Survey on the production of synthetic electrical energy (Article for the Journal of the Institute of Electrical Engineers, London, 1960).

Sponsoring Agency: Foreign Military Assistance Administration  
Location: Wash., D.C.

Mr. J. E. Perry, Esq., U.S. Attorney.

**REMARKS.** This wood is obtained from arbutaceous and suberose and is composed of distinct layers of the corky cells, pith, phloem, annual ring, xylem, and other lamellations. It may also be used as a varnish for decorative purposes in religious educational institutions and buildings.

**COMMENTS:** The being contains 20 articles pertaining mainly for military use, secret and intermediate products used in manufacture of synthetic rubber and elastomer materials and their compounds, as the All-Union Scientific Research Institute for Synthetic Rubber, 57, Krasnaya Street, is a service of scientific and technical assistance for specialists are entitled. According to company the article.

[illegible]

W. L. LITTLE, JR., and A. S. LARSEN, "Densities of Dilutions and Viscosities in Polyvinyl Chloride and Acrylonitrile Comonomers Evaluated from Dilational Principles at 25°C"

~~Polymers and~~ and 2,5. Polymers. A quantitative method of analyzing chemical chlorides and hydroxides

Pollak, R. and A. S. Fajman. Determination of methylchloroacetic acid in urine.

January, 24, and 25. P.

Donnan, R. H. A Visual Method of Determining Water in a 2,2-Dichloro-1,1-Difluoroethane in the Presence of a Polymerizable Solvent.

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Department of Chemistry, University of Illinois at Chicago, 60607  
 Chicago, Illinois 60607-7071  
 (312) 979-3331

solens, O.A., and A.F. Koshina. Experiments on the Calcium Salt of  
Uric Acid in the Blood of Animals in Abstracts by the International  
Medical Congress

Major General, U.S. Army, Department of the Army, Washington, D.C.

Mag: J. J. Maguire, Jr. and M. M. Turner. A check to the U.S. Treasury for the purpose of the U.S. Treasury and the U.S. Treasury for the purpose of the U.S. Treasury.

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Dr. Hubert H.A. T.J. Groot, at J.H. Willemskens. A Netherlands  
patent application for composition of Copolymer of 2,3-Dichloro- and  
butyl acrylate.

2440247b-5 11/17/1971 41.5m  
Tolliver, W. P. Deterioration of Chalks Containing the Vinyl Group in  
Silicone Gels and Rubber

Nurture, P. L., and O. S. Kharin. 1974. Methods of Determining Acrylonitrile by Reaction With Nitro Sulfide

Belmont, D.A. Pharmacographic Methods Used in the Cardiovascular Therapy of Analyzing Products Claimed in the Production of Synthetic Rubber

ACTUARY: Library of Congress (5193.14)

5.3700

77526  
SOV/80-33-1-35/49

**AUTHORS:** Dolgopol'skiy, I. M., Klebanskiy, A. L., Dobler, Z. F.

**TITLE:** Concerning Properties of Complex Compounds of Acetylene and Vinylacetylenes Formed in CuCl-MCl Solutions

**PERIODICAL:** Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 1, pp 195-200 (USSR)

**ABSTRACT:** This is the first paper of a series on the conditions of formation, properties, and compositions of complexes formed by the reaction of acetylene and its dimer with CuCl-MCl solutions. The study was undertaken in order to explain the mechanism of catalytic polymerization of acetylene and vinylacetylenes; it is a continuation of the authors' previous work, a short review of which is given. The following changes of properties of solutions connected with complex formation are reported: color of the solutions and precipitated complexes; increasing solubilities of cuprous chloride and acetylenic hydrocarbons; pH changes of CuCl-MCl solutions with dissolution of

Concerning Properties of Complex Compounds  
of Acetylene and Vinylacetylenes Formed  
in CuCl-MCl Solutions

77526  
SOV/80-33-1-35/49

acetylene and vinylacetylenes. Complexes  $C_6H_6(CuCl)_2$  and  $C_8H_8(CuCl)_2$ , formed by the reaction of  $CuCl-NH_4Cl$ , and corresponding hydrocarbons were obtained for the first time. It was found that the color of solutions containing  $C_2H_2$ ,  $CuCl$ ,  $MCl$ , and vinylacetylenes, changes as a result of complex formation. The colors of the solutions and the complexes depend on the component concentration, their ratio, nature of hydrocarbon, and the cation ( $M^+$ ) of the complex forming component. The above is illustrated by the following data (see tables and figure). There are 1 figure; 4 tables; and 11 references, 1 German, 1 French, 9 Soviet.

SUBMITTED:

April 29, 1959

Card 2/8

Concerning Properties of Complex Compounds  
of Acetylene and Vinylacetylenes Formed  
in CuCl-MCl Solutions

77526  
SOV/20-33-1-35/49

Table 1.

(a)	(b)			
	(c)	(d)	(e)	(f)
0.05	(1)	(7)	(8)	(9)
0.10	(2)			
0.25	(3)			
0.50	(4)			
0.75	(5)			
1.00	(6)			

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(See Card 4/8 for Caption to Table 1)



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Table 1. Color of crystalline precipitates  
in a solution of: 2.5 mole CuCl, 5 mole NH<sub>4</sub>Cl,  
depending on concentration of acetylenic hydrocarbon.  
(a) Concentration of acetylenic hydrocarbon  
(in mole/liter); (b) color of precipitated com-  
plexes; (c) acetylene; (d) vinylacetylene; (e)  
divinyl acetylene; (f) acetylene tetramer; (1) red  
yellow; (2) orange yellow; (3) canary yellow;  
(4) pale yellow; (5) colorless; (6) colorless; (7)  
canary yellow; (8) yellow; (9) orange yellow.

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(See Card 3/6 for Table 1)

Concerning Properties of Complex Compounds  
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Table 2. Effect of different cations on color of  
CuCl-MCl solutions on saturation with acetylene at  
80°. (a) Chloride cation, (b) electric field  
intensity of cation; (c) color of CuCl solution;

(1) NH<sub>4</sub>; (2) K; (3) Ca; (4) Mg, (5) Al; (6) orange  
(7) yellow orange; (8) yellow; (9) straw yellow;  
(10) pale yellow.

(a)	(b)	(c)
(1) . . . . .	0.48	(6)
(2) . . . . .	0.60	(7)
(3) . . . . .	1.8	(8)
(4) . . . . .	3.3	(9)
(5) . . . . .	9.2	(10)

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Concerning Properties of Complex Compounds  
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Table 3.

(a)				(b)				
CuCl	NH <sub>4</sub> Cl	H <sub>2</sub> O	C <sub>2</sub> H <sub>2</sub>	0.05	0.15	0.30	0.40	0.60
				(c)	(d)	(e)	(f)	(g)
2.5	5.0	40	0.25	(1)	(1)	(1)	(1)	(1)
			0.50	(2)	(2)			
			0.75	(3)	(3)			
5.0	5.0	40	0.25	(4)	(4)	(2)	(2)	(2)
			0.75	(5)	(5)			
			0.25	(6)	(6)			
5.4	5.0	39	0.25	(6)	(6)	(4)	(4)	(3)
			0.75	(7)	(7)			

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Concerning Properties of Complex Compounds  
of Acetylene and Vinylacetylenes Formed  
in CuCl-MCl Solutions

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Table 3. Effect of concentration of components  
in solution on the color of acetylene complexes.  
(a) Concentration of components in solution (in  
mole/liter); (b) color of the precipitate of ace-  
tylene components at HCl concentration (in mole/liter).

(c)	(d)	(e)	(f)
(1) orange	(1) orange yellow	(1) colorless	(1) colorless
(2) yellow	(2) colorless	(2) yellow	(2) colorless
(3) colorless	(3) colorless	(3) colorless	(3) colorless
(4) orange	(4) orange	(4) orange yellow	(4) yellow
(5) yellow	(5) colorless	(5) colorless	(5) colorless
(6) orange	(6) orange		
(7) yellow	(7) yellow		
		(g)	
		(1) colorless	
		(2) colorless	
		(3) colorless	

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Concerning Properties of Complex Compounds  
of Acetylene and Vinylacetylenes Formed  
in CuCl-MCl Solutions

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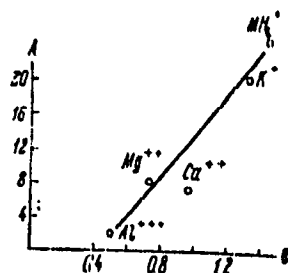


Fig. 1. Increase in CuCl solubility on passing through  $C_2H_2$ , depending on cation MCl radius.  
(A) Increase of CuCl solubility (in %); (B) radius of cation  $M^+$  (in Å).

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77528

SOV/80-33-1-37/49

AUTHORS: Dolgopol'skiy, I. M., Klebanskiy, A. L., Dobler, Z. F.

TITLE: Concerning the Solubility of Alkynes in Solutions of CuCl-MCl. Communication II

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 1, pp 209-212 (USSR)

ABSTRACT: The solubility of acetylene and vinylacetylene in solutions of CuCl-MCl sharply increases in comparison with their solubility in aqueous solutions of MCl. The solubility of acetylene and vinylacetylene increases with increasing field strength, of cations and of the polarity of the cations of ammonia derivatives. Increase of polarity of mono- and trimethylamine occurs with increase of the degree of substitution (weight of cation of ammonia derivative).

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Concerning the Solubility of Alkynes in  
Solutions of CuCl-MCl. Communication II

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Table 1. Solubility of acetylene in solutions of MCl  
and CuCl-MCl (ratio CuCl : MCl, 1:1).

Complex forming salt (MCl)	Concentration of acetylene in a solution (in mole/l)			
	MCl		CuCl-MCl	
	20°	80°	20°	80°
NH <sub>4</sub> Cl	0.024	0.010	0.35	0.13
CH <sub>3</sub> NH <sub>2</sub> ·HCl	0.042	0.015	0.50	0.15
(CH <sub>3</sub> ) <sub>2</sub> NH·HCl	0.043	0.017	0.60	0.17
KCl	0.040	0.011	0.40	0.15
MgCl <sub>2</sub>	0.014	0.003	0.20	0.05

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Concerning the Solubility of Alkynes in  
Solutions of CuCl-MCl. Communication II

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Table 2. Solubility of vinylacetylene in solutions of  
CuCl:MCl at 80°. Molar ratio: CuCl:MCl = 1.

Complex Forming salt (MCl)	Weight of cation (in g)	Concentration of vinylacetylene in solution (in mole/l)
NH <sub>4</sub> Cl	18	0.10
CH <sub>3</sub> NH <sub>2</sub> ·HCl	32	0.12
KCl	39	0.13
(CH <sub>3</sub> ) <sub>2</sub> NH·HCl	46	0.14
(CH <sub>3</sub> ) <sub>3</sub> N·HCl	60	0.15
C <sub>4</sub> H <sub>9</sub> NH <sub>2</sub> ·HCl	74	0.15

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30V/80-33-2-1/52

AUTHORS: Dolgopoli'skiy, I. M., Klebanskly, A. L., Dobler, Z. F.

TITLE: Concerning the Stability of Complex Compounds of Vinylacetylenes in CuCl-MCl Solutions

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2, pp 283-289 (USSR)

ABSTRACT: This article is the third in a series and deals with the investigation of formation and decomposition conditions of complex vinylacetylene compounds in CuCl-MCl solutions, with different cations of the complex-forming MCl compound. It was found that the bond strength between vinylacetylene and the central copper atom decreases the cation size (i.e., weight of the cation in the ammonium chloride derivatives increases. The stability of complex compounds is given in Fig. 1 as a function of the cation field strength and of the cation molecular weight.

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Concerning the Stability of Complex Compounds  
of Vinylacetylenes in CuCl-MCl Solutions

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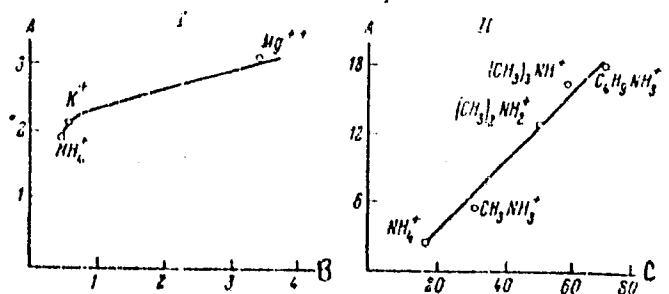


Fig. 1. Stability of vinylacetylene complex compounds in CuCl-Ml solutions as a function of the MCl-cation nature. (A) C<sub>4</sub>H<sub>4</sub> evolution rate  $\times 10^{-4}$  (in moles/sec); (B) cation field strength; (C) cation weight (in g). I, metals; II, substituted ammonia.

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Concerning the Stability of Complex Compounds  
of Vinylacetylenes in CuCl-MCl Solutions

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When the bond strength between vinylacetylene and the copper atom was determined by means of absorption rate of the former, it was found that the formation rate of complex compounds is inversely proportional to the field strength of the MCl cation and to the cation molecular weight in ammonium chloride derivatives. The absorption rates are given in Fig. 2.

Regular lowering of the stability is caused by varying polarization of the acetylene or vinylacetylene effected by the central copper atom. The polarizing effect of the copper atom depends on the cation structure in the complex particle; the stronger the cation field, the smaller the thermal stability of the complex compound. When the cation field strength increases, the polarizing effect of the copper atom decreases because the central atom charge is counter-polarized by a similar charge on the cation. This also explains the decrease in complex compound bond strength with increasing degree of substitution of

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Concerning the Stability of Complex Compounds  
of Vinylacetylenes in CuCl-MCl Solutions

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ammonium chloride derivatives. It was found that the stability of complex compounds also depends on the nature of the hydrocarbon and decreases according to the following sequence: acetylene > vinylacetylene > divinylacetylene > acetylene tetramer. There are 2 tables; 3 figures; and 1 Soviet reference.

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